Calendar No. 635

98TH CONGRESS
1st Session

SENATE

REPORT
No. 98-342

OUTER SPACE ARMS CONTROL NEGOTIATIONS

NOVEMBER 18 (legislative day, NOVEMBER 14), 1983.—Ordered to be printed

Mr. PERCY, from the Committee on Foreign Relations, submitted the following

REPORT

[To accompany S.J. Res. 129]

The Committee on Foreign Relations, to which was referred the joint resolution (S.J. Res. 129) calling upon the President to seek a mutual and verifiable ban on weapons in space and on weapons designed to attack objects in space, having considered the same, reports favorably thereon with an amendment and recommends that the joint resolution as amended do pass.

OUTER SPACE ARMS CONTROL NEGOTIATIONS

The Committee on Foreign Relations, having had under consideration an original joint resolution with respect to a mutual and verifiable ban on weapons in space and on weapons designed to attack objects in space, reports favorably thereon and recommends that the joint resolution do pass.

PURPOSE OF THE JOINT RESOLUTION

To bring attention to the dangers of a space weapons race and to urge the U.S. to seek arms control agreements that would foreclose the "weaponization" of space. The resolution notes the benefits to security, science and commerce derived from space operations that would be undermined by a space weapons race. Additionally, it notes that the expansion of military competition into outer space poses grave risks to global security and significantly add to the cost of providing for defense.

The resolution notes that the pace of space weapons development, including the imminent testing of anti-satellite weapons, could soon foreclose options for avoiding the weaponization of outer space. It, therefore, calls upon the President to seek agreement with the Soviet

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Union to: declare an immediate, mutual and verifiable moratorium of limited duration on the testing in space of anti-satellite weapons; immediately resume negotiations on a mutual and verifiable ban on the testing, production, deployment, and use of any anti-satellite weapon; and, seek, on an urgent basis, a comprehensive verifiable treaty prohibiting the testing, production, deployment, and use of any space-directed or space-based weapons system which is designed to inflict injury or cause any other form of damage on the Earth, in the atmosphere, or on objects placed in space.

Committee Action

Hearings were held on resolutions dealing with outer space arms control during the 97th and 98th Congress. During the 97th Congress, a hearing was held before the Subcommittee on Arms Control, Oceans, International Operations and Environment to receive testimony on S. Res. 129, offered by Senator Pressler to urge the prompt resumption of U.S.-Soviet negotiations to ban anti-satellite (ASAT) weapons. At this September 20, 1982 hearing, testimony was received from Arms Control and Disarmament Agency (ACDA) Director Eugene V. Rostow; Under Secretary of Defense for Research and Engineering, Richard D. DeLauer, accompanied by Defense Advanced Research Projects Agency (DARPA) Director, Dr. Robert Cooper and Deputy Assistant Secretary of Defense, Dr. Ronald Lehman. Three public witnesses giving testimony were: Ambassador Robert W. Buchheim, former head of the U.S. delegation to the U.S.-Soviet ASAT talks (1978–1979); Dr. Richard L. Garwin, Fellow at the IBM Corporation, T. J. Watson Research Center; and Dr. John Steinbruner, Director of Defense Studies, Brookings Institution.

During the 98th Congress two hearings were held in full Committee, with Senator Pressler in the chair. During these sessions, held on April 14, 1983, and May 18, 1983, testimony was received on two resolutions which were subsequently consolidated, incorporating a new provision derived from recommendations received in testimony, into an original joint resolution. The two resolutions considered in April and May were:

S. Res. 43—Expressing the sense of the Senate that the President of the United States invite the Soviet Union to negotiate a verifiable ASAT ban as a first step towards prohibiting all space-based and space-directed weapons. This resolution was a successor to resolutions offered by Senator Pressler during the previous Congress.

S. J. Res. 28—A joint resolution introduced by Senator Tsongas, calling upon the President to resume bilateral talks with the Soviet Union to negotiate a comprehensive ban prohibiting: (1) testing, production, deployment or use of any space-, air-, or ground-based weapons designed to damage, destroy or interfere with spacecraft; and (2) the stationing of any weapon in space.

Testimony was received from four expert witnesses during the April 14 hearing: Jan M. Lodal, former National Security Council staff member; Professor George Rathjens, Massachusetts Institute of Technology; Lt. General Daniel O. Graham (USA, ret.), Director, High Frontier; and, Daniel Deudney, Senior Researcher, World-

watch Institute. At the May 18 hearing, testimony was received from ACDA Director, Kenneth L. Adelman and from Fred C. Ikle, Under Secretary of Defense for Policy. The Union of Concerned Scientists presented a report and draft treaty on ASATs, with associated testimony given by three of its authors, Dr. Kurt Gottfried, Dr. Richard Garwin and Admiral Noel Gayler (USN, ret.). Carol Rosin of the Institute for Security and Cooperation in Outer Space also gave testimony.

Testimony of relevance to these issues was also received in the course of hearings on United States-Soviet Relations held in June, 1983.

In the wake of the Committee's hearings a compromise joint resolution, S. J. Res. 129 was introduced by Senator Pressler, with Senators Tsongas, Pell, Percy, Mathias, and Cranston as original cosponsors, on July 14, 1983. The resolution incorporates elements of S. Res. 43, S. J. Res. 28, together with a provision calling for an immediate, mutual and vertifiable moratorium of limited duration on the testing in space of ASATS, suggested by Senator Pell.

Committee Comments

I. SPACE AS A THEATER OF WARFARE

The Committee turned its attention to the issue of outer space arms control in the face of evidence pointing to a discernable shift in U.S. and Soviet military space policy. Over the last several decades, the United States and the Soviet Union have made use of space programs not involving weapons to enhance their mutual security. Military space systems have enhanced international stability and promoted prospects for achieving verifiable arms control accords on earth. Reconnaissance satellites have become accepted instruments for keeping nations honest in their legal undertakings. They have also reduced the prospects of one side being taken by surprise by military developments on the other side. Early warning systems deployed in deep space act to minimize the risks of a nuclear bolt from the blue.

However, as technology has advanced in recent years, making viable weapons that can be targeted at or deployed in outer space, defense planners and strategists have begun a process that could lead to the weaponization of space and transforming outer space into a new theater of warfare.

In the course of hearings, it became clear, first, that the defense establishments of both sides are moving toward an arms race in space of almost unimagined dimensions and, second that this has attracted little serious attention at high policy levels. It was clear to Members that the cost of space armaments would rapidly come to dwarf the costs associated with programs such as the MX. Yet, current U.S. military space programs were proceeding absent the close scrutiny that has attended the proposed deployment of the new generation MIRVed Intercontinental Ballistic Missile (ICBM).

For some time, it seems that adopting space as a weapons zone represented as great a change in military strategy as the advent of airpower or the atomic bomb. And, while it was not clear that this shift

would provide a net gain in security, and could well complicate the strategic environment and decrease stability, the failure to pursue space arms limitations could be a catastrophic mistake.

II. CROSSING THE MILITARY THRESHOLD IN SPACE

(1) *Anti-satellite weapons*

The Soviet Union has the world's only operational anti-satellite (ASAT) weapons system, which has been operational since the 1960s. Though some analysts ascribe limited capabilities to the ASAT, particularly in its ability to attack satellites in significant quantities or in a timely manner, the absence of an American counter-weapon has been a cause for concern in the last three administrations.

The Soviet system's gravest threat is to low earth orbiting satellites. If development continues without restraint, the Soviets could develop ASATs able to attack systems at much higher altitudes, including communications and early warning satellites. Such a threat posed by effective ASATs on either side could undermine strategic stability if either side got the notion it could attack the other's satellites and gain an advantage in a nuclear strike.

The Soviets are known to be actively engaged in the development of exotic technologies with outer space applications, notably laser weapons and particle beam devices. According to testimony by Dr. Richard D. DeLauer, Under-Secretary of Defense for Research and Engineering, this decade old effort is funded by the Soviets at levels that are three to five times greater than in the U.S. However, as was evident in testimony to the Committee, opinion is divided on whether the Soviets have an appreciable lead over the U.S. in development of such directed energy weapons.

In response to the Soviet ASAT program, the U.S. has since 1977 been developing an ASAT capability. Unlike the Soviet orbital interceptor which is launched by a variant of the SS–9 missile, the American ASAT rocket will be fired by modified F–15 aircraft. This system reportedly cannot attack satellites at high altitude, a limitation it shares with the Soviet weapon. Tests are scheduled in the near future.

(2) *The star wars speech*

A March 23, 1983 televised Presidential address provided the most dramatic indication that space is rapidly becoming the new defense line. In what has been called the "Star Wars Speech," the President presented a "vision of the future" in which the capability to "intercept and destroy strategic ballistic missiles before they reached our own soil and that of our allies" would allow the U.S. to abandon a strategy of deterrence which requires keeping our society hostage to nuclear attack.

Recognizing that developing capabilities suitable to this mission would be "a formidable task," the President noted that such a program involved many technological uncertainties and could take decades of intense effort to complete. Implementing such a scheme could also involve strategic risks. In President Reagan's words: "If paired with offensive systems, they (defensive system) can be viewed as fostering an aggressive policy and no one wants that." Nevertheless, the President believed the goal worthy of challenging the scientific

community "to give us the means of rendering these nuclear weapons impotent and obsolete."

The speech made no reference to specific technologies, but in White House briefings the press was told that the most likely candidate was laser weapons deployed in or redirected through platforms in outer space. Shortly after delivering the March 23 address, the President signed directives initiating studies to consider the political-military issues of advanced technology BMD systems and to define a "long term research and development program" for this effort. Recommendations reportedly have now reached the President's desk. Press reports indicate that those studying ballistic missile defense (BMD) technologies believe that a multilayered system would be most effective and the first layer may be deployable by the year 2000. This group has suggested four options that would allow a demonstration of the potential of advanced BMD systems by the early 1990s. Depending upon the level of effort, it will cost $18–$27 billion to conduct these programs. Any procurement for operational systems will entail additional cost.

III. ARMS CONTROL BACKGROUND

(*1*) *Anti-satellite negotiations*

The origins of the decision to develop an American ASAT as a response to the continued Soviet ASAT effort can be traced to the closing days of the Ford Administration. The decision taken in January, 1977, on the eve of the inauguration of President Jimmy Carter, was reportedly sketchy at best. It was, therefore, left to the incoming Administration to consider details and decide on the role to be played by U.S. ASAT development in U.S. security policy.

In concurring with development of an American counterweapon to the Soviet ASAT, the Carter Administration had a purpose other than deployment primarily in mind. The Carter decision, like the 1979 NATO decision to deploy Perishing-2 and Ground Launched Cruise Missiles in Europe, was to treat ASAT development as part of a dual-track approach to security, linking arms control to weapons acquisition. Through the F–15 ASAT program, the Administration hoped to obtain the bargaining leverage it required in moving the Soviets toward a total prohibition on ASATs.

At American urging, negotiations began in 1978. A total of three rounds were held before talks lapsed in 1979. While the talks did highlight differences between U.S. and Soviet goals, Ambassador Robert W. Buchheim, who headed the U.S. ASAT talks delegation, told the Committee that the Soviets treated the talks "very seriously" and that "nothing happened" during the three rounds to warrant a decision to terminate discussions. Rather, it was an even extraneous to these negotiations, the Soviet invasion of Afghanistan in December 1979, which led to a break in every major U.S.-Soviet discussion, not only on those dealing with arms control. Talks have since resumed on other major weapons programs, but negotiations on ASATs weapons are a notable exception.

At present, the Committee on Disarmament (CD) in Geneva is the key forum for space arms control discussions. The one specific issue thus far addressed in the CD is the possible creation of a work-

ing group to examine the implications of a space arms race. The nature of such a working group's mandate has been the major bone of contention.

Until recently, the Administration maintained that a working group would serve no useful purpose unless its mandate was clearly defined, confining it to an examination of the current outer space legal regime, alternative space arms control proposals and technical issues. Such a mandate would exclude negotiations themselves.

In mid-August, 1983 shortly after the Committee concluded its mark-up of S.J. Res. 129, the U.S. joined with other Western states in calling for a working group along these lines. This move was supported by the CD's group of neutral and non-aligned states, but ultimately it was rejected by the Soviet Union. Among other things, the Soviets based their action on the failure to include formal negotiations as part of the working group's mandate. Moscow's rejection came as a surprise, given the Soviet Union's repeated calls for a CD working group. To date, the Administration has rejected the concept of renewed bilateral negotiations.

(2) Outer space arms agreements in force

Several international agreements afford protection to satellites and constrain offensive military activities in space. The following agreements are particularly important:

The Limited Test Ban Treaty (1963) prohibits nuclear weapons tests or any other nuclear explosions in space. Laser weapons that use a nuclear explosion as a power source would appear to be subject to this prohibition;

The Outer Space Treaty (1967) prohibits the placement or nuclear weapons or other weapons of mass destruction in Earth orbit, in outer space or on celestial bodies;

The Anti-Ballistic Missile Treaty (1972) prohibits interference with national technical means of verification, including satellites;

The SALT I Interim Agreement (1972) prohibits interference with national technical means of verification, including satellites;

The Environmental Modification Convention (1977) bans the use of environmental modification techniques as a means of destroying, damaging or causing injury in outer space.

These accords fall into two categories: those that provide rules of behavior protecting verification activities; and those prohibiting the use or the placement in space of nuclear devices, or the employment of exotic techniques for interrupting space systems.

These accords permit testing, development and deployment on the ground or in outer space of any anti-satellite weapons not incorporating nuclear devices or other mechanisms for mass destruction. This has allowed the Soviets to maintain and test its ASAT weapon and will allow the U.S. to match the Soviet effort.

(3) The anti-ballistic missile treaty

Under the terms of the 1972 treaty, the U.S. and the Soviet Union "undertake not to develop, test, or deploy ABM systems or components which are sea-based, air-based, space-based, or mobile land-based" (Article V). Some individuals have suggested that since Article II describes an ABM system as one "currently consisting of" an inter-

ceptor, a launcher and radar, that systems involving other components are not subject to this prohibition.

Jan Lodal, a National Security Council staffer at the time of the ABM negotiations, testified "this is a very common and very wrong reading of the ABM Treaty, not only in its negotiating history but what it says . . . The 'currently consisting of' is strictly a description of today's situation." Lodal added, "the prohibition on space is absolute."

The 1972 treaty does permit two fixed land-based ABM sites, each with a hundred launchers, one at a nation's capital and one at an ICBM complex. In 1974, both sides agreed to limit themselves to one site. But according to Ambassador Gerard Smith, former U.S. ABM Treaty Negotiator, "If land-based systems were developed using so-called exotic components, lasers, particle accelerators, et cetera, they could not be deployed unless the treaty was amended."

Research is permitted by the accord. Determining the point at which research crosses the boundary into prohibited activities is a crucial question. Administration witnesses have cited the 1972 testimony of the (then) Director of the Arms Control and Disarmament Agency, Gerard Smith to the Senate Armed Services Committee:

> The prohibitions on development contained in the ABM Treaty would start at that part of the development process where field testing is initiated on either a prototype or breadboard model. It was understood by both sides that the prohibition on "development" applies to activities involved after a component moves from the laboratory development and testing stage to the field testing stage, wherever performed. The fact that early stages of the development process, such as laboratory testing, would pose problems for verification by national technical means is an important consideration in reaching this definition.

In sum, the Administration acknowledges that it would have to amend the ABM Treaty prior to the start of advanced development.

IV. ANTI-SATELLITE WEAPONS: BUDGETARY, MILITARY AND STRATEGIC CONSIDERATIONS

(1) *Costs*

The Committee noted that the financial consequences of the U.S. ASAT effort will likely be much higher than is presently envisioned. With regard to the F–15 launched weapon, the price of $3.6 billion offered by the Air Force is challenged by a cost estimate offered in a General Accounting Office (GAO) study released in January. The unclassified digest to this study states that "tens of billions of dollars" is a more accurate projection of ASAT program cost.

Even before F–15 ASAT space-flight tests, development and deployment of more sophisticated weapons is under consideration. Press reports suggest that the Air Force Space Command has proposed a more capable laser ASAT weapon to supplement, if not replace, the F–15 system. In previously published Department of Defense (DOD) estimates to the Armed Services Committee, a laser ASAT was priced at $50 billion.

Absent ASAT arms control agreements, we must assume the Soviet Union will proceed towards the deployment of more advanced ASATs and other space weapons. Such a situation will likely lead to new deployment and additional demands for defense spending.

Ignored in these cost projections are the funds required to defend against an unconstrained Soviet ASAT threat. Financing countermeasures for an active and increasingly sophisticated Soviet ASAT capability could greatly increase the cost of all space operations. Shielding, improved maneuver capability and related countermeasures would also increase launch weights and may reduce the size of payloads directed at a satellite's primary mission. These added costs could come to burden civilian satellite owners and users since commercial assets often supplement military systems and would also require protection. In addition to expenditures extracted for passive anti-ASAT defenses, active defensive satellite (DSAT) systems may be in the offing. A DOD estimate suggests that a laser DSAT would cost on the order of $50 billion.

Based on these projections, the cost of a race in ASATs, DSATs, and passive defense measures could rapidly come to dwarf the drain on the U.S. economy of current weapons acquisition programs, such as Trident and MX, posing severe financial strains on the American people.

(2) Military and strategic issues

Two miiitary arguments have been offered to justify the U.S. ASAT program. First, that the U.S. ASAT is required to deter Soviet ASAT attacks. Second, given Soviet space-based capabilities to direct Soviet forces against U.S. and allied forces, the U.S. requires the capability to neutralize Soviet satellites with this mission. Under close examination, neither rationale proves convincing.

(*a*) *The Issue of Deterrence.*—A broad spectrum of witnesses testified that the U.S. was more dependent upon satellites for defense than was the Soviet Union. This situation is in part due to geography. Areas of strategic concern to the U.S. are overseas from North America; whereas, areas of key interest to the Soviet Union are on its periphery. To a high degree, the U.S. must rely upon satellites for effective command and control of U.S. forces in many situations where the Soviets possess land-lines to perform these functions. Our European allies have voiced concerns that the Soviet ASAT could sever the few satellites links connecting North America to Europe, effectively decoupling the U.S. from the defense of Europe. Presently, some 70 percent of U.S. military communications overseas is transmitted via satellites.

The U.S., far more than the Soviet Union, has traditionally emphasized sea power in its military strategy. Additionally, the U.S. has placed a greater proportion of its retaliatory forces at sea. ASATs could compromise communications links to both conventional and strategic sea-based capabilities. Acording to the former Commander of U.S. Forces in the Pacific, Admiral Noel Gayler, satellites provide the only "reasonably secure" communications links to the U.S. Navy and they are "the only way known to me to make sure of reliable and redundant capabilities to execute any nuclear war plans."

Trends point to increasing U.S. dependence on space-based systems for military activities currently utilizing these assets. With new space

technologies coming on line, a wider variety of military users will come to rely on space-based defense aids in the near future.

Under these conditions of greater and increasing U.S. dependence on space systems, a U.S.-Soviet satellite exchange employing ASAT weapons will likely be far more disruptive of U.S. military activities on earth. Since a Soviet decision to attack U.S. systems in space would be made from the perspective of the wider military consequences of such an engagement, a U.S. ASAT in and of itself would not necessarily provide U.S. satellites with protection from Soviet ASAT use. On the other hand, a ban on all ASATs woud deprive the Soviets of an effective attack capability, whatever the level of relative dependence on space systems.

The Committee believes that other strategies may be more effective in reducing incentives for attacking U.S. space assets. Senator Pressler has written that the U.S. could "reduce the risks by stocking backup systems that could be launched if our satellites are threatened," using the Space Shuttle. It is worth noting that while Soviet single mission, short duration and frequent replacement satellite programs may seem to be a less effective way of operating in peacetime, in wartime these practices offer advantages by minimizing the military importance of any single space platform and assuring quick replenishment, when necessary.

(*b*) *The Defense Rationale.*—Under the defense rationale for ASATs, the U.S. may elect to initiate satellite attacks to neutralize threats posed by Soviet space surveillance systems used to direct Soviet forces against U.S. forces and those of allies, particularly navies. At a minimum, this argument contradicts the deterrence justification for the U.S. ASAT program. But aside from this inconsistency, there are other considerations which suggest that the military threat posed by these Soviet systems is not in and of itself so significant as to stand in the way of arms control efforts to make space a sanctuary.

First, we can not hope to deny the Soviets a category of space system without denying sanctuary to U.S. space-based systems with targeting potential. Second, the Soviets would likely use their satellites to obtain targeting information before opening conflict. An American capability to attack Soviet surveillance systems afterwards, would have limited effect upon Moscow's ability to inflict damage on the ground. Third, the U.S. possesses other means that are both cheaper and more effective in meeting the space surveillance threat. Camouflage, electronic countermeasures and reducing the electronic signature of U.S. naval forces are among the possible options. Finally, the Soviets also have other means for obtaining required targeting information on naval forces. Soviet surface and undersea vessels can shadow, report on and directly attack Western navies. Attacking Soviet satellites will not reduce this threat.

Moreover, we should note that there are cheap and effective methods of neutralizing satellites without ASATs. Satellite ground facilities are relatively few in number and are difficult to harden. Using limited resources, other forms of attack including sabotage, can disable these facilities. Disrupting a single ground station can neutralize an entire satellite network.

V. BALLISTIC MISSILE DEFENSE: BUDGETARY, MILITARY AND STRATEGIC CONSIDERATION

(1) *Costs*

In the case of advanced BMD systems, estimates for single weapons systems often exceed the annual U.S. defense budget in its entirety. At the same time, most experts who testified before the Committee had serious doubts these expenditures will achieve the laudable goal of defense against nuclear attack.

With the exception of Lt. General Daniel Graham, witnesses estimated that limited space-based BMD systems would likely cost well in excess of a hundred billion dollars to deploy. Note was taken of one DOD estimate that a more encompassing laser BMD system could cost up to $500 billion, or about twice the entire U.S. defense budget today. Not included in these estimates are operations and maintenance costs which would be massive in themselves.

With regard to Lt. General Graham's claim that a BMD system can be built and deployed using existing technology "within 5 or 6 years, at a cost . . . of $15 billion," the Defense Department raised serious objection. Dr. DeLauer told the Committee that the Graham proposal "grossly underestimated" the time required and the costs involved. In an Armed Services Committee hearing, Dr. Robert Cooper, Director of DARPA, stated that Graham's High Frontier concept involved "expenditures in the order of $200 to $300 billion in acquisition costs alone."

A space arms race poses a clear risk of spreading U.S. financial resources for defense even more thinly than is presently the case. The Committee notes that the U.S. currently faces major difficulties in maintaining the effectiveness of existing military capabilities and is concerned that financial commitments to space weaponry would exacerbate this condition across the entire defense posture. "Even in the best of circumstances, a space arms competition is likely to take away tax dollars from other important military programs," Senator Percy told the Committee.

(2) *Military and strategic issues*

The case for spaced-based ballistic missile defenses rests primarily upon the ability to remove or significantly reduce the threat of nuclear annihilation. Secondarily, some have argued that a move into space armaments allows the U.S. to seize and hold a strategic advantage and reap political as well as military benefits.

The second justification was presented to the Committee by Lt. General Graham who stated, "I like it up there because my side wins. It has all the technological advantages." The Committee recalls that the U.S. decision to deploy MIRVs was motivated by a wish to increase security through technological superiority. Unfortunately, benefits were short-lived, ending once the Soviets deployed MIRVs themselves. We must recognize that technology knows no national boundaries. We can expect the Kremlin to match the U.S. or even set the pace in any open ended space competition, demanding of the Soviet people whatever sacrifice would be required.

In the view of the Committee, the goal of totally protecting the U.S. from any nuclear damage in a war with the Soviet Union through advanced space-based and space-directed BMD systems is likely to be

unobtainable. Professor George Rathjens of MIT, a former Deputy DARPA Director, testified: "If we are talking about defense of American cities, population and industry, I really think at the present time the situation is fundamentally hopeless . . . I don't think $200 billion would even begin to make a dent on that kind of problem if we credit the other fellow with any effort at all to overcome what we might do." The Defense Department has acknowledged that even a $500 billion defensive network would allow a significant number of warheads to "leak" through.

Soviet efforts to overcome U.S. missile defenses could very well negate any protection obtained from those systems. Senator Tsongas cited massive deployments of relatively inexpensive cruise missiles as one possible technique for getting around a BMD system.

Advanced BMD systems could undermine effective control over critical national security decisions. The ability to attack missiles during the vulnerable boost phase is held up as an advantage of space-based BMD systems. But the boost phase lasts little over 400 seconds. Systems requiring such rapid response would effectively remove key officials with responsibility for this nation's security from the chain of command. Decisions would be left to low level defense technicians and machinery that may be prone to failure.

The feasibility of space weapons systems based upon advanced technologies remains in question. Chairman Percy noted that DOD spokesmen have stated that "It would be 1987 at the earliest before 'an informed decision' could be made on the prospects of going ahead with" laser ASATs. Given the massive power requirements of systems capable of disabling or destroying ballistic missiles or their warheads, determining the viability of laser BMD systems is likely to be further off into the future. Particle beam based weapons are an even more remote possibility.

BMD systems of any type also face major technological hurdles in the design of equipment for handling the entire panoply of battle management and fire control functions. DARPA's Robert Cooper informed the Committee, "The enormous complexity of such a system is unmanageable today, we need basic . . . breakthroughs in the ability to manage large complex systems before such systems might be feasible."

The Committee concludes that even if the problems of costs, viability or effectiveness could be overcome transforming outer space into a weapons zone will likely undermine rather than enhance U.S. defense strategy.

VI. CONCLUSIONS

(1) The U.S. has bargaining leverage even if it does not test its ASAT

The Committee believes that the 1977 decision to pursue the F–15 ASAT system primarily to bring about an agreement involving the dismantlement of the Soviet ASAT, was based on sound judgment. Only absent Soviet seriousness in dealing with problems of space arms control was U.S. ASAT deployment envisioned. It is nearly four years since talks were broken off for reasons extraneous to the negotiations. As the F–15 ASAT weapon approaches advanced testing, Soviet sincerity on arms control has not been tested. The crucial arms control component of the dual-track 1977 decision has been abandoned.

Bilateral talks are the only appropriate approach to what essen-

tially is a U.S.-Soviet problem. They are the only two nations that have or can soon possess space weaponry. The CD is simply not the appropriate negotiating arena. Given the large number of peripheral participants at the CD, there is little prospect for rapid progress on issues involving weapons programs of high political and security sensitivity. The CD could play a positive role in gaining adherence by the world's nations to an agreement after a U.S.-Soviet accord is concluded. This could prevent future problems as other nations acquire the relevant technology.

Some argue that the U.S. would be in a better position to negotiate once we possess a proven ASAT capability. The Committee believes, however, that the Soviets should have few doubts on American abilities to successfully test and deploy an ASAT.

In August, Soviet Chairman Yuri Andropov announced several new Soviet initiatives to a nine-Member Senate delegation headed by Senator Pell.

Mr. Andropov told the group that the Soviet Union was declaring a unilateral moratorium on launches of anti-satellite weapons into space, so long as the United States and other nations show similar restraint.

In addition, the Soviet Chairman declared, his nation was prepared to reach agreement to eliminate anti-satellite systems already in existence and to ban creation of new ones.

The delegation noted in its report that "the unilateral moratorium poses few difficulties for the Soviets, while serving the purpose of galvanizing public opinion against tests now planned by the United States of the F–15 based ASAT system."

The Committee agrees fully with the assessment and recognizes the difficulty of putting a moratorium in place. However, a moratorium could be of considerable value as part of genuine effort by both sides to achieve a sound, verifiable agreement banning ASATs.

The Soviet offer to dismantle existing ASATs and to ban new ones could be of considerable importance. A 1981 Soviet draft treaty did not contain such an offer. A new draft treaty, incorporating Chairman Andropov's proposal to dismantle and ban ASATs, is now before the United Nations.

The Committee concurs wholeheartedly in the delegation's judgment that the proposal should be treated seriously by the administration. The Administration criticized the moratorium. Unfortunately, it has not seriously explored the interesting and forthcoming offer to dismantle existing ASATs and ban new ones. While recognizing that there will be obstacles to agreement and that verification will be difficult, most Members conclude that the latest Soviet initiative would justify the early resumption of bilateral negotiations. Only through negotiations can we determine whether the Soviets are genuinely interested in banning ASATs and weapons in space.

In the Committee's view, an exploration of Soviet intentions through negotiations is warranted. It is consistent with the intent of the 1977 ASAT decision. Should the Soviet offer prove to be a propaganda ploy, the U.S. would retain its ASAT testing and deployment options. We have lived with the Soviet ASAT for 15 years. A further delay of limited duration in testing the F–15 based system seems justified if it can lead to averting an open-ended space arms race.

(2) Verification problems of an ASAT ban can be overcome

The Administration presents verification as the key obstacle to a total ASAT ban. For instance, ACDA Director Kenneth Adelman testified that destruction of the entire Soviet ASAT interceptor inventory would be difficult to verify, since we have no inventory of the quantities manufactured. Nor, does it seem possible to prevent clandestine manufacture of interceptors in the future. We recognize that verification of an ASAT prohibition may require unique and perhaps extreme measures, beyond destruction of declared ASAT inventories. But failure to halt the Soviet program at this point would permit them to deploy more capable weapons, creating additional verification problems. Potentially, the generation of Soviet ASAT may prove unverifiable.

After the F–15-based ASAT is successfully tested against a target in space, the Soviets may assume it to be operational. Once that occurs, designing an effective verification regime for a total ASAT ban will be extremely difficult. One possible approach would be to develop functionally related observable differences (FRODs), distinguishing F–15s with an ASAT capability from those without. FRODs negotiated in SALT II for B–52 bombers modified to carry air-launched cruise missiles (ALCM) and those without an ALCM capability are a precedent. But FRODs for the F–15 ASAT system may not be easy to design, nor is it certain that agreement along these lines can be achieved.

We believe that Soviet seriousness in seeking a ban should be measured through its willingness to offer effective procedures for verifiably removing the ASAT threat. But this can only be resolved at the bargaining table.

This procedure is comparable to that followed at the on-going START and INF talks. Lack of detailed solutions to verification problems did not prevent these talks from getting underway. Nothing about ASAT systems would indicate that different pre-conditions are justified. On the contrary, verification problems arising from F–15 ASAT space flight tests are a compelling reason for immediate resumption of negotiations.

The enormity of the verification problem associated with a prohibition on ASATs has led specialists who testified before the Committee to advocate maintaining the status quo through a permanent moratorium on ASAT flight tests. The Committee feels that while such an arrangement may be easier to negotiate and verify, it would not end the threat posed by the operational Soviet ASAT system. One third of U.S. satellites would remain in jeopardy. Destruction of only a few satellites could seriously weaken U.S. capabilities.

The Committee shares concerns which motivated specialists assembled by the Union of Concerned Scientists to propose an ASAT test ban and recognizes that this measure is proposed as a stop-gap until a total prohibition is achieved. But to allow the Soviets to retain the world's only proven system would not provide the Soviets with incentives for dismantling their ASAT under an appropriate verification regime. Such an accord risks legitimizing Soviet advantage and becoming permanent.

Others have proposed limiting ASAT deployments to the current Soviet and American ASAT systems. But this arrangement would

leave a significant number of satellites exposed to attack. Moreover, the Soviet response to U.S. ASAT deployment is unknown. It may choose to deploy a more advanced system as a replacement to its 15 year old weapon rather than enter into this type of accord.

Recognizing the severe verification problems that will arise in the immediate future, the Committee believes that a moratorium of limited duration on ASAT space flight tests would sustain conditions required for a successful negotiation. This approach avoids the pitfall associated with unlimited space flight test bans or other ASAT limitations.

(3) The ABM treaty serves vital U.S. national interests

The Committee believes that U.S. interests have been well served by the ABM Treaty. It has saved many billions in acquisition and operations and maintenance costs. Had systems been deployed in the early 1970s, they would be out-dated today and additional expenditures would have been required to modernize or replace them. The treaty has helped to avert a defense planner's nightmare by avoiding contests in defensive systems and in offensive technologies designed to defeat them. Conditions created by the Treaty provide incentives for implementing current strategic arms control proposals in which MIRVed missile would be abandoned in favor of more stable single warhead systems.

Since research activities are not fully verifiable under the terms of the accord, the Committee believes that vigilance through an active ABM research program is a necessary guarantee against Soviet breakthrough. Absent evidence to the contrary, proposals reportedly under consideration by the Administration appear to go well beyond the level of effort required in guarding against this contingency. These proposals call for a level of effort that would permit a U.S. deployment decision rather than simply a hedge against a Soviet deployment.

The U.S. ABM Treaty Negotiator, Gerard Smith, noted two principal risks of this approach. First, rightly or wrongly, it could "signal our intention to annul the ABM Treaty." This could propel the Soviet BMD program and potentially place the Soviets in position to quickly break free of treaty constraints, even if the U.S. ultimately decides against adopting advanced BMDs. Second, "Any major program to implement the President's dream [to eliminate the threat posed by nuclear weapons] would very quickly run afoul of the ABM Treaty's constraints. Even engineering work to develop a space-based system is banned under the Treaty." We question the merits of jeopardizing an extremely valuable arms control accord for the purpose of exploring programs of uncertain utility.

Given the grave strategic implications, the technological uncertainties and cost of advanced ballistic missile defense concepts, U.S. interests would be best served by eschewing programs that threaten continued adherence to the ABM Treaty. We believe that discussion of advanced BMD systems must be incorporated into negotiations on space arms control. Including a prohibition on all space-based and space-directed weaponry in a space arms control treaty would reinforce this injunction and would close loop-holes that might otherwise be exploited by technologies beyond those currently envisioned.

In summation, the Committee strongly urges that the President take three actions if an arms race in space is to be avoided. First, immedi-

ately seek a mutual and verifiable moratorium of limited duration on ASAT space flight tests. This would sustain conditions required for quickly reaching a mutual and verifiable ban on all ASAT weapons. Under this arrangement the Soviets would have incentives for seeking agreement since the U.S. would retain its option to deploy the F–15 ASAT if the Soviets prove uncompromising. Second, immediately resume bilateral negotiations to prohibit the testing, production, deployment, and use of any anti-satellite weapon. This is the best method available to determine whether the Soviets wish to avoid a space weapons competition. If an accord can be reached it would eliminate the Soviet ASAT threat and prevent a costly and potentially dangerous space arms race. Third, these talks should be urgently expanded to include negotiations on all future space-based and space-directed weaponry. This would reinforce and expand the prohibitions contained in the ABM Treaty, an accord which has clearly served U.S. security interests.

Earlier accords such as the treaty establishing a nuclear-free zone in Latin America, the Outer Space Treaty, the Antarctic Treaty and the Seabed Arms Control Treaty have served to prohibit weapons before their deployment in specific zones. The Environmental Modification Treaty has served to prohibit the use of a class of weapons. There may be an opportunity now to stop ASATs before either side has a significant system and to ban space-based and space-directed weapons before they are impossible to stop. We can reap the enormous benefits of such achievements if we are willing to treat obstacles to agreement not as insurmountable barriers but as challenges to be met directly and overcome. We would do well to follow the example of President Kennedy, who, during the Cuban Missile Crisis, seized on the positive—rather than the unacceptable—aspects of the Soviet position and built toward a successful resolution.

Section-by-Section Analysis

SECTION 1

(a) Section 1, subsection 1, calls on the President to seek agreement with the Soviet Union on an immediate, mutual and verifiable moratorium of limited duration on the testing in space of antisatellite weapons. Severe verification problems that could foreclose achieving a prohibition on ASATS will arise once the F–15 based systems is tested against a target in space. This provision would preserve conditions favorable for negotiating an effective prohibition on all ASAT weapons for a fair and reasonable period. This period should be long enough to allow negotiations to succeed, but not so long as to legitimize the Soviet ASAT while depriving the U.S. of rights to respond to this Soviet capability. The length of the moratorium is to be determined by the President.

(b) Section 1, subsection 2, calls on the President to seek the immediate resumption of U.S.-Soviet negotiations on a mutual and verifiable treaty prohibiting the testing, production, deployment, and use of any anti-satellite weapon. Given the Soviet Union's current ASAT capability, such a treaty would provide for its destruction.

(c) Section 1, subsection 3, urges the President to seek, on an urgent basis, a comprehensive verifiable treaty prohibiting the testing, production, deployment, and use of any space-based or space-directed weapons systems. Such an agreement would prohibit future weapons systems deployed in, or directed at space, with capabilities to inflict or cause any other form of damage on the Earth, in the atmosphere, or on objects placed in space. This prohibition would reinforce prohibitions contained in the 1972 ABM Treaty and would close potential loopholes in a space arms control treaty that might otherwise be exploited by future technological developments.

SECTION 2

Section 2 specifies that space arms control agreements should not restrictict operations in space not involving weapons. The U.S. derives major advantages from space operations not involving weapons. Arms control agreements must promote rather than limit prospects for deriving the greatest possible benefit from space operations. This section is designed to protect the Space Shuttle and other vital U.S. space programs that the Soviets might seek to constrain through an agreement.

Cost Estimate

In accordance with Rule XXVI, paragraph 11(a) of the Standing Rules of the Senate, the Committee finds that there will be no budgetary impact from the passage of this Joint Resolution. The following estimate was provided by the Congressional Budget Office:

U.S. Congress,
Congressional Budget Office,
Washington, D.C., November 17, 1983.

Hon. Charles H. Percy,
Chairman, Committee on Foreign Relations,
U.S. Senate, Washington, D.C.

Dear Mr. Chairman: Pursuant to Section 403 of the Congressional Budget Act of 1974, the Congressional Budget Office has reviewed S.J. Res. 129, joint resolution calling upon the President to seek a mutual and verifiable ban on weapons in space and on weapons designed to attack objects in space, as ordered reported by the Senate Committee on Foreign Relations on July 19, 1983.

Based on this review, it is expected that no additional cost to federal, state or local governments would be incurred as a result of this legislation.

Sincerely,

Rudolph G. Penner.

Regulatory Impact and Changes in Existing Law

In accordance with Rule XXVI, paragraph 11(b) of the Standing Rules of the Senate, the Committee concludes that there will be no regulatory impact from the passage of this joint resolution. There will also be no repeal or amendment of existing law.

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